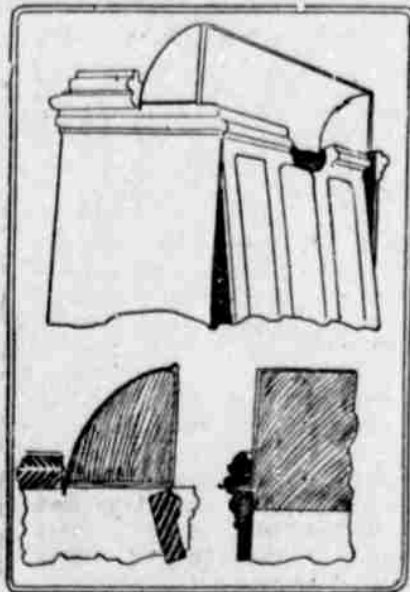


# SCIENCE AND INVENTION.

## SOUND DEFLECTOR FOR PIANOS

Arrangement by Which the Sound Is Thrown Out Into the Room.

It does seem rather odd that the source of music in a piano should be completely boxed up in a case, so that the sound waves must first penetrate the case before they can reach our ears. To be sure, some pianos are provided with a swinging front, and a hinged lid at the top, which may be opened to prevent complete muffling of the sound; but the sound is deflected downward by the hinged front, or passes directly up to the ceiling when the top of the case is open. In the accompanying engraving, says the Scientific American, we illustrate a device which may be placed over the



Sound Deflector.

open top of the piano to deflect the sound waves issuing therefrom, and direct them to the audience in the room or concert hall. The deflector is a very simple device of light construction, comprising two end boards connected by a curved back of such form as properly to direct the sound into the room. The end boards are formed with cushioned flanges adapted to rest on the side wall and thus prevent lateral displacement. In consequence, the deflector does not need to be fastened in place, but may be readily set in position or removed without operating any fastening means. By its use the full volume of sound passes in concentrated form into the room without being diffused. A patent on this sound deflector has recently been secured by a Newport, R. I., man.

## THE NAILLESS HORSESHOE.

New Invention by Which Every Man Can Do His Own Shoeing.

By means of this nailless horse shoe, the inventor declares, every farmer may become his own horse-shoer.

The base of the nailless horseshoe is made very much like the ordinary shoe, except that the toe and heel calks are removable. They are fastened by short, heavy screws from the upper side. If, in dry weather, a "rough shod" is desired, the smooth calks which are usually used in dry



The Nailless Horseshoe.

weather, may be taken off and replaced with sharp ones. The shoe is held in place by clamps made of rolled steel that is so pliable it may be doubled without breaking. The band, or clamp, touches the shoe at each heel and at the toe, but does not cross the back of the hoof, thus affording the natural expansion of the frog when the weight of the animal is thrown upon it. There are four short brads coming up from the sole of the shoe which extend into the shell of the hoof a quarter of an inch. They are merely to stay the shoe. The shoe is fastened on with the aid of a small wrench.

This shoe may be taken off or replaced at will. Every part of the years. All that is necessary is to have on hand a few extra calks, which any farmer or horseman may replace.

**Hornets as Protection Against Flies.**  
A Maine woman owns the best protection against the ubiquitous fly. It is nothing but a simple hornet's nest, that hangs just outside the house door. Its inmates are so tame by the kindness of their owner that they never molest or sting her. Not a fly has entered the house since the installation of this unique flytrap.

**Troublesome Metal Nodules.**  
If metallic iron is melted along with copper or brass, it is said that part enters the alloy and becomes chemically combined, and the remainder separates in pellets or nodules of the hardness of steel. These nodules are the source of much trouble in brass, as they injure tools to an alarming extent.

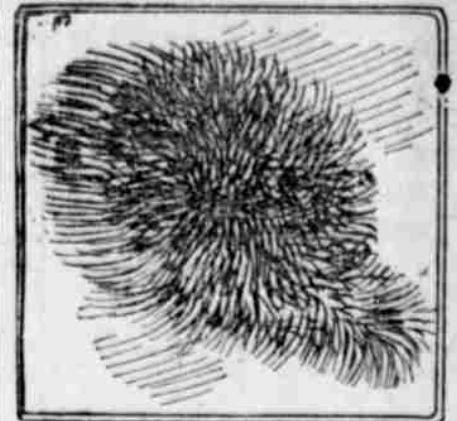
## Underwater Bell.

Experiments are being made at the Ausenjadé lightship with a bell fixed beneath the surface of the water, to ascertain how far sound signals interfere with one another.

## A DEADLY PLANT.

Sharp, Barbed Seed Vessels Which Penetrate Vitals of Animals.

A plant that is often fatal to animal life, not on account of any poisonous qualities, but because of the penetrating effect of its sharp barbed seed-vessels, is described by a French botanist, Mr. Blanchard, in the Archives de Parasitologie (Paris).



Mass of Stipa Grass.

We quote below, says the Literary Digest, from an abstract made for the Revue Scientifique. Says the writer: "In South America chiefly in the vast plain that extends from Patagonia up to Bahia Blanca, and also in the province of Santa Fe and in Uruguay, there are large grasses of the genus Stipa, which grow in the spring, and whose misdeeds have been exposed by Mr. Blanchard.

"These grasses have a fruit about 75 millimeters (three inches) long, made up of three parts; first, a short basal portion formed of a conical axis with a very sharp point covered with sharp stiff hairs directed backward; second, a cylindrical part formed of a membrane enclosing the seed; and third, a shaft like that of an arrow.

"All the Stipas of South America have these arrows, which, when the wind blows, strike people in the face and hands, and produce very painful wounds; they are so abundant that they adhere to the fences, forming a continuous fringe miles in length, and giving the illusion of vast lines of foam. A man may get rid of the darts that light on his

beard, hair or clothes, but if he neglects to pluck them off at once they penetrate the thickest garments and reach the skin; if an attempt is made to withdraw them they break, and the seed remains embedded in the cloth, being removed with great difficulty. In any case, although man may contend successfully against them, animals are unable to do so, and the sheep that are bred in such numbers on the pampas are their chief victims; the darts of the Stipa penetrate their eyeballs and blind them, so that, being no longer able to find their way about, they die of hunger and thirst. The seeds also form amid the hair of the feet, and over the whole cutaneous surface a mass of sharp points which every movement pushes into the flesh, giving rise to ulcers, to which the animal generally succumbs.

"The darts also penetrate into the salivary glands of herbivorous animals, where they accumulate in great masses; these form especially under the tongue, where they render difficult the movements of the organ and the prehension of food.

"The genus Stipa is disseminated throughout warm and temperate regions, but is rarely found in Europe. There are about a hundred species, of which four are found in France, but as these grasses are driven out by cultivation, they are seldom found in gardens and fields, and are not at all dangerous to cattle in France."

## MIMICRY IN NATURE.

How Birds and Insects Protect Themselves from Notice and Attack.

An official of the National museum at Washington, who has made many trips abroad in the interest of that institution, states that in South America forests the butterflies and the birds are equally brilliant in their colors, but that the butterflies, being weaker, fall a prey to the birds. One very bright-hued species of butterfly, however, is not disturbed by the birds, on account of the disagreeable odor that it emits. Singularly enough, some other groups of butterflies, which resemble in color the species just described, also escape persecution by the birds, although they emit no odor. It is evident that the similarity of color deceives the birds, and thus serves as a shield for the butterflies. This sort of mimicry of color and form, which naturalists call "protective resemblance," is not very uncommon among insects.

Another form of "protective resemblance" which exhibits much contrivance and skill is sometimes found among birds. Some birds hide their eggs among stones that resemble the eggs in form and color. The little "bottle tit" in England weaves a bottle-shaped nest out of moss, lichens and spiders' webs, and when placed in a tree or bush the nest so closely resembles its surroundings that it can hardly be detected. The color and appearance of the nest are imitations of the prevailing color and appearance of the particular tree in which it is placed.

## BIRD TRAVELS WITH GIRAFFE

Red Billed Weaver Constant Companion of Animal Skyscraper.

The red-billed weaver bird is a constant companion of the giraffe, perching itself upon the withers and flying along when its host takes to flight, and immediately alighting again on its back at the first opportunity. The only means of defense or offense by the giraffe is by means of its hoofs, and the blows it can deliver by kicking are of tremendous power. The old males during the breeding season fight in this manner a good deal, and the female employs the same means in defending her young against carnivorous animals.

Giraffes are very swift of foot, and it requires a very fleet horse to run them down. Experienced hunters, however, charge them at full speed, and by this means are often able to run into them, and if the giraffes are fat they will soon become "blown." When running, the tail is twisted in a corkscrew fashion over the back and the hind legs at each step are thrown on the outside of the forelegs, giving a very grotesque straddling appearance. The giraffe is mute, but he has a very keen sense of hearing and of smell.

## LIMB RAW AS PIECE OF BEEF.

Suffered for Three Years with Itching Humor—Cruiser Newark U. S. N. Man Cured by Cuticura.

"I suffered with humor for about three years off and on. I finally saw a doctor and he gave me remedies that did me no good, so I tried Cuticura when my limb below the knee to the ankle was as raw as a piece of beef. All I used was the Cuticura Soap and the Ointment. I bathed with Cuticura Soap every day, and used about six or seven boxes of Cuticura Ointment. I was thoroughly cured of the humor in three weeks, and haven't been affected with it since. I use no other Soap than Cuticura now. H. J. Myers, U. S. N., U. S. S. Newark, New York, July 8, 1905."

**Scheme Worked Out Badly.**  
Congressman Sulzer represents a densely populated district on the East side of New York city. It occurred to him some months ago that though there are no gardens in his district some of his constituents might grow plants in boxes placed on window sills or fire escapes, so he sent an assortment of seed to the inmates of a model tenement house owned by one of his friends. The latter met him a few days ago and said: "See here, Sulzer, I want you to cut out that seed business. It's the limit!" "Why, what's the matter?" asked the astonished Sulzer, and he explained why he had sent the seeds. "Oh, you meant well, all right," returned the friend, scornfully, "but when I visited the place the other day I found that about ten families were raising cabbage, cucumbers and tomatoes in the bath tubs."

**Tea on the Down Grade.**  
Tea drinkers are finding scant encouragement in a report recently made by a large tea exporting house in Yokohama to its American customers. Incidentally it indicates that the United States is not alone in facing increased cost of living. The report says: "Owing to the rapidly increasing cost of living in Japan labor costs more, and in consequence cultivation of the tea gardens is less generous and extensive than formerly, and less care and skill are expended in picking and curing the leaf. Hence the average quality of the teas now offered for sale is below that of seasons prior to the war, and for the same reasons we are not likely to see any reversion to the excellence of former years."—New York Sun.

## NO MEDICINE.

But Change of Food Gave Final Relief.

Most diseases start in the alimentary canal—stomach and bowels. A great deal of our stomach and bowel troubles come from eating too much starchy and greasy food. The stomach does not digest any of the starchy food we eat—white bread, pastry, potatoes, oats, etc.—these things are digested in the small intestines, and if we eat too much, as most of us do, the organs that should digest this kind of food are overcome by excess of work, so that fermentation, indigestion, and a long train of ailments result.

Too much fat also is hard to digest, and this is changed into acids, sour stomach, belching gas, and a bloaty, heavy feeling.

In these conditions a change from indigestible foods to Grape-Nuts will work wonders in not only relieving the distress but in building up a strong digestion, clear brain and steady nerves. A Wash. woman writes:

"About five years ago I suffered with bad stomach—dyspepsia, indigestion, constipation—caused, I know now, from eating starchy and greasy food. I doctored for two years without any benefit. The doctor told me there was no cure for me. I could not eat anything without suffering severe pain in my back and sides, and I became discouraged.

"A friend recommended Grape-Nuts and I began to use it. In less than two weeks I began to feel better, and inside of two months I was a well woman and have been ever since.

"I can eat anything I wish with pleasure. We eat Grape-Nuts and cream for breakfast, and are very fond of it." Name given by Postum Co., Battle Creek, Mich. Read the little book, "The Road to Wellville," in pkgs. "There's a reason."

# Girl of the Golden West.

More Practical and Thorough Than Her Eastern Sister When at College—Has Head for Business and Is Able to Care for Herself.

BY MARGARET E. SANGSTER.

Breezy, buoyant, self-reliant, a trifle self-assertive, and usually equal to the situation, the western girl belongs to the most modern and, it may be added, the most charming type of womanhood. A generation ago her mother was a pioneer in the rapidly growing states that lie beyond what we now call the middle west. If her mother were not a pioneer her grandmother was, and no little debt does the girl of the day owe to the women who went before her, in that they braved the trials of a new country and brought into it the refinements and comforts of the higher civilization.

Too much praise can never be given to the men and women who have made the great west. The women, particularly, have shown indifference to hardship, and pluck in the face of difficulty, a dauntless courage and a boundless hospitality. To their homes the casual visitor was ever welcome and they were equally ready to receive a new idea and to foster whatever was best in culture and education.

All over the western land there are colleges and universities to which students throng for the sake of gaining the higher learning. These colleges lack the superb apparatus and costly equipment of eastern institutions, but, on the other hand, they are splendidly manned by professors and tutors eager to teach, and their students are willing to undergo severe privations that they may be taught.

The western girl, if she decides to go to college, cares less about the social side of college life than she does about the solid good she hopes to gain. She studies hard and she often very largely pays her own way. It is to be noted that many of the western institutions are coeducational and, in a part of the country where women are as influential as men, even in politics, it is not extraordinary that they should sit side by side in the classroom.

When the western girl comes to the east she is fully able to hold her own with the daughters of other sections. She has, as a rule, the advantage of a definite aim. She knows what she wants and she is not easily turned from the direct line. She is practical, adaptable and thorough.

In business, the young woman from the west is bound to succeed. Whether she act as buyer for her firm or advance agent or assume any other obligation of trust, she does her work with the tact of a woman and the energy of a man. One such girl, fair-haired, blue-eyed, and distinctly feminine, not long ago shouldered the responsibilities of a large manufacturing house, and represented it in a city 3,000 miles away. She was feminine to her finger-tips, but it was said of her that she had the brain and the business capacity of a man in the enterprises with which she was identified.

When the western girl marries, if her husband's means are small, she attacks the problem of living with a resolution and cheerfulness that make daily life a poem. She cooks, washes, irons, looks after children and very likely keeps up her technique in music and writes papers for her club. Western women are apt to regard very seriously their pledges to the club that keeps them in touch with current events and opinions. The club idea has done a great deal for the women who live at a distance from the great towns. At the little weekly or fortnightly gatherings of the club, women discuss the village and municipal affairs, inaugurate reforms and work for the uplifting of humanity. The atmosphere of many a town that would else be inert and sluggish is brightened and freshened by the earnestness and conscientiousness of the women who reside there.

When the young woman of the west marries wealth, she proves herself able to assume the direction of a large establishment, to manage servants, to entertain visiting royalties if they happen to cross the Atlantic, and come to her door, and to be an intelligent patron of art and literature. If

there is a great exposition to be carried on, there is no fear that the young women of the west will leave their part unadorned. In European courts and in lofty places in the far off east, our western girls have shown in brilliant light. Lady Curzon's name will not soon be forgotten. No daughter of a line of kings ever more adequately filled an eminent position or more beautifully bore the honors of viceregal state.

It has sometimes been said that the young women of the west are a step in advance of the men in the graces and amenities of life. In other words, that they are more polished and attach more importance to conventionalities than their husbands and brothers do. This is only partially true. The manners of a son of the soil anywhere in our western land are good enough to pass muster among many men, and are therefore, the manners of gentlemen. If a man be honest, kindly and well-bred what more is wanted? Surely it is natural that ceremony, table etiquette and the minor things that belong to social intercourse, should be in the hands of the women.

One's thought goes with a certain sympathy to the young women whose lot is cast not in village or town, but on the frontier, on the edge of a mining camp or on a ranch remote from neighbors. The girl who lives on the rim of civilization, if educated, must depend for much of her pleasure on books. She has many solitary hours. Housekeeping with her is simpler than in cities and she devotes a good deal of time to outdoor life. Such a girl lives in the open, rides well, and is never more beautiful than when flying across the plains on a pony swift and sure of foot. She asks no odds of anyone, but can saddle and bridle her horse and is on friendly terms with him, let him be ever so full of spirit and fire. She is a good shot and abundantly able to take care of herself.

The young woman of the west cares more about reforms of every kind than does her eastern sister. She has been brought face to face with a rougher life and has seen men tempted and tried. If she fights the power of the saloon or any form of graft and degeneracy, she does it because she sees only too plainly that it must be met and coped with or it will prove a menace to the republic.

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## Entirely New Method of Draping the Veil.

The present modish way of draping the long lace veil is unlike any style ever before introduced.

The veil is first placed around the edge of the hatbrim and secured at the back, allowing the ends to float in the air, then the net is drawn closely over the face and under the chin, and the flowing ends caught at the back and gathered into a long gold safety pin at a point near the nape of the neck.

Invariably the veil should harmonize with the color of the hat, although golden brown is a fashionable shade that may be worn with almost any colored hat.

The average length of the fashionable veil for this use is one and one-half yards. And the lace considered smartest is Chantilly, having a dainty border on all sides. The mesh may be plain or dotted as individual taste prefers.

A few extremists favor heavy borders having a vine or floral design running from the lower edge over the center, so that when the veil is over the face the pattern stands out prominently, sometimes almost disfiguring the countenance.

The smartest driving veil is of ivory green chiffon; it has a tucked or hem-stitched border and is worn pinned closely over the hat and face with ends carefully tucked in at the back.

While this shade is best suited for the eyes, it also has the advantage over other shades, inasmuch as it harmonizes with almost any colored hat.

# To Mount Photographs.



A very pretty and interesting way of decorating a plate or dish for hanging on the wall is to gum unmounted photographs of our friends in the center. In an oval plate, like the one shown in our sketch, three or four portraits may be used, and the uncovered portion of the plate forms a very pleasant kind of frame for the photographs. In a circular plate, one photograph cut to fit the center portion looks wonderfully well, and several plates, nicely arranged round an overmantel, make a decoration interesting to the owner and visitor alike. It is not necessary to fasten the photos too securely in their places, and they can from time to time be changed, and in this way are always a source of fresh attraction.

## FILLING UP THE CANADIAN WEST.

The American Settler Is Welcomed to Canada.

A number of the leading newspapers on this side of the line have been noticing the growth of the Canadian West in recent years, and draw attention to the fact that there seems to be no abatement of the influx of settlers to that great grain-growing country. The Buffalo Express thus refers to the subject:

"Canada West continues to grow. There were 4,174 homesteads entries there in July of this year, as against 3,571 in July, 1905. Canada plumes herself over this fact, with becoming pride. But what appears to make our neighbors happiest is the statement that of these 4,174 homesteaders, 1,212 were from this side of the line. Little is said about the 97 Canadians who recrossed the border to take up homes in Canada West, or of the 808 from Great Britain, or of the 1,236 from non-British countries. It appears that the item in this July report that makes Canada rejoice most is this of the 1,212 American farmers who decided to try their fortunes in Canada West.

"The compliment is deserved. The 1,212 were mostly from Dakota and other farming states, and go into Canada fitted better than any other class of immigrants for developing the new country. They take capital with them, too, say Canadian papers proudly. In every way, they are welcome over there."

As the Express well says, the American is welcomed to Canada, and the reasons given are sufficient to invite the welcome. The American farmer knows thoroughly the farming conditions that prevail in the Canadian prairie provinces, and is aware of every phase of agricultural development in recent years.

In practical knowledge of what is wanted to get the largest return for labor and investment he is by long odds superior to any European settler. He knows what is required to bring success, and he is able and willing to do it, and his future causes no apprehension to the successful Canadian farmer. The agent of the Canadian Government, whose address appears elsewhere, says that the difference between the manners and customs of the farmer from Dakota, Oregon or Minnesota and the farmer from Manitoba, Saskatchewan or Alberta is not nearly so marked as that between the farmer of the Maritime provinces and the Ontario tiller of the soil. Hence the welcome to the free homesteads of the Canadian West, and there are hundreds of thousands of them left, that is extended to the settler from the Western States.

**Museum Gets Fine Pulpit.**  
King Friedrich August of Saxony has given to the Germanic museum at Harvard a full-size reproduction of the sandstone pulpit of the Church of Weichselburg, near Leipzig. This gift is regarded as the most important made to the museum since the fine collection of casts was sent by the German emperor. The pulpit belongs to the beginning of the thirteenth century, and is a massive structure, 15 feet high, resting on Romanesque columns.

STATE OF OHIO, CITY OF TOLEDO, ss.  
I, FRANK J. CHENEY, do hereby certify that he is a senior partner of the firm of F. J. CHENEY & CO., doing business in the City of Toledo, County and State of Ohio, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE.  
FRANK J. CHENEY.  
Sworn to before me and subscribed in my presence, this 6th day of December, A. D. 1906.  
A. W. GLEASON,  
NOTARY PUBLIC.  
Hall's Catarrh Cure is taken internally and acts directly on the blood and mucous surfaces of the system. Send for testimonials, free.  
F. J. CHENEY & CO., Toledo, O.  
Sold by all Druggists. Take Hall's Family Pills for constipation.

**India's Railroad Industry.**  
One of the main schemes of the railway board is to have rolling stock built up partly in India, which will give manufacturing firms in this country an opportunity for tenders for the construction of wagon frames and bodies. The experiment will also be extended to state lines, tenders being received up to 25 per cent. part in India, which will give the total number of wagons sanctioned for construction yearly, while axles, wheels, etc., will be obtained by each railway administration on indent from home and be supplied to contracting firms.—Indian World.

**Care of Children's Teeth.**  
At Strassburg, Germany, a dental clinic has been opened at the university for the treatment of school children. Hither all the school children are sent, in order, by their teachers. Each child is quickly examined, as many as eighty children being dealt with in an hour, and nearly 300 a day, by a single doctor. Teaching goes hand in hand with treatment. The doctor tells the child how to use a tooth brush, sees that he uses one, and sends him home to practice with it. The movement is spreading. In Wiesbaden and Mulhausen school dental clinics are to be erected.

**Unearthing the Briber.**  
During a recent campaign in England a certain woman called on a laborer's wife and asked if her husband would vote for Lord Blank. "No, he won't," was the reply. "But, remember the blankets and coals you got from the clergyman." "Never mind them. He's been promised a new pair of trousers if he votes for Mr. Dash." Suspecting that this was a case of bribery that must be undone, the woman canvasser offered a sovereign if the woman would tell her who had promised the trousers. The money paid over, the woman smiled. "I promised them," she said, "and I'll buy them out of your sovereign."